

PART 1 - GENERAL

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| <u>1.1 Installation and Removal</u> | .1 | Provide construction facilities in order to execute work expeditiously.

Remove from site all such work after use. |
| <u>1.2 Site Storage/ Loading</u> | | Confine work and operations of employees by Contract documents. Do not unreasonably encumber premises with products

Do not load or permit to load any part of work with a weight or force that will endanger the work.

Storage areas must be approved by the Engineer. |
| <u>1.3 Construction Parking</u> | .1 | Parking will be permitted on site provided it does not disrupt the performance of work. |
| | .2 | Do not allow parking on streets or roads |
| <u>1.4 Equipment, Tool and Materials Storage</u> | | Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials. |
| | .2 | Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities. |
| | .3 | Locate where directed by the Engineer. |
| <u>1.5 Construction Sign</u> | | Erect owner provided construction sign(s) within three weeks of signing Contract. Location(s) to be designated by Engineer.

Construction sign to be 2438 x 1219 mm, of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter. |

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1.5 Construction Sign (Cont'd)	Maintain sign in good condition for duration of work. Clean periodically. No other signs or advertisements are permitted.
1.6 Protection for Off-Site and Public Property	Protect adjacent private and public property from damage during the performance of the Work. Be responsible for all damages incurred due to improper protection
1.7 Protection of Adjacent Property	Provide adequate protection adjacent property and equipment during the performance of the Work. Provide necessary screen, covers, hoardings, etc. as required. Be responsible for all damages incurred due to improper or lack of protection.
1.8 Measurement for Payment	There will be no separate measurement for payment under this section. It is incidental to completion of the work.

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1.1 Reference Standards

Within the text of the specifications, reference may be made to the following standards

ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASTM	American Society of Testing and Materials
CEC	Canadian Electrical Code (published by CSA)
CEMA	Canadian Electrical Manufacturer's Association
CGSB	Canadian General Standards Board
CISC	Canadian Institute of Steel Construction
CLA	Canadian Lumberman's Association
CPCA	Canadian Painting Contractors' Association
CPCI	Canadian Prestressed Concrete Institute
CRCA	Canadian Roofing Construction Association
CSA	Canadian Standards Association
FM	Factory Mutual Engineering Corporation
IEEE	Institute of Electrical and Electronic Engineers
IPCEA	Insulated Power Cable Engineers Association
NAAMM	National Association of Architectural Metal Manufacturers
NBC	National Building Code
NEMA	National Electrical Manufacturers' Association
TTMAC	Terrazzo, Tile and Marble Association of Canada
ULC	Underwriters' Laboratories of Canada

1.1 Reference
Standards
(Cont'd)

Conform to these standards, in whole or in part as specifically requested in the specifications

If there is question as to whether any product or system is in conformance with applicable standards, the Consultant reserves the right to have such products or systems tested to prove or disprove conformance.

The cost for such testing will be born by the Engineer in the event of conformance with Contract Documents or by the Contractor in the event of non-conformance.

5. Conform to latest date of issue of referenced standards in effect on date of submission of bids, except where a specific date or issue is specifically noted.

1.2 Quality

Products, materials, equipment and articles (referred to as Products throughout the specifications) incorporated in the Work shall be new, not damaged or defective, and of the best quality (compatible with specifications) for the purpose intended. If requested, furnish evidence as to type, source and quality of Products provided

Defective Products, whenever identified prior to the completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.

Should any dispute arise as to the quality or fitness of Products, the decision rests strictly with the Consultant based upon the requirements of the Contract Documents.

Unless otherwise indicated in the specifications, maintain uniformity of manufacture for any particular or like item throughout the building.

1.2 Quality .5 Permanent labels, trademarks and nameplates
(Cont'd) on Products are not acceptable in prominent locations, except where required for operating instructions.

1.3 Availability : Immediately upon signing Contract, review Product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of Products are foreseeable, notify the Consultant of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

In the event of failure to notify the Engineer at commencement of Work and should it subsequently appear that Work may be delayed for such reason, the Engineer reserves the right to substitute more readily available products of similar character, at no increase in Contract Price.

No substitution of any item will be permitted unless the item cannot be delivered to the job site in time to comply with the Schedule.

To receive approval, proposed substitutes must equal or exceed the quality, finish and performance of those specified and/or shown, and must not exceed the space requirements allotted on the drawings.

: Provide documentary proof of equality, difference in price (if any) and delivery dates in the form of certified quotations from suppliers of both specified items and proposed substitutions.

: Include all costs in the difference in price (if any) for any required revisions to the structures and products to accommodate such substitutions.

1.4 Storage,
Handling and
Protection

Handle and store Products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

Store packaged or bundled Products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in the Work.

- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store pipe in a safe manner and protect from damage to cement linings and insulation jacketing.
- .8 Remove and replace damaged Products at own expense and to the satisfaction of the Engineer.

1.5 Transportation

- .1 Pay costs of transportation of Products required in the performance of Work.
- .2 Transportation cost of Products supplied by the Owner will be paid for by the Owner. Unload, handle and store such Products.

1.6 Manufacturer's
Instructions

- .1 Unless otherwise indicated in the specifications, install or erect Products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided

1.6 Manufacturer's Instructions
(Cont'd)

- (Cont'd)
- with Products. Obtain written instructions directly from manufacturers.
- 2 Notify the Engineer in writing, of conflicts between the specifications and manufacturer's instructions, so that the Engineer may establish the course of action.
- 3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes the Engineer to require removal and re-installation at no increase in Contract Price.

1.7 Workmanship

- Workmanship shall be the best quality, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Engineer if required Work is such as to make it impractical to produce required results.
- Do not employ any unfit person or anyone unskilled in their required duties. The Engineer reserves the right to require the dismissal from the site, workers deemed incompetent, careless, insubordinate or otherwise objectionable.
- Decisions as to the quality or fitness of workmanship in cases of dispute rest solely with the Engineer, whose decision is final.

1.8 Co-Ordination

- 1 Coordinate the work of all Subcontractors.
- 2 Insure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- 3 Be responsible for coordination and placement of openings, sleeves and accessories.
- 4 Ensure that items to be built in are supplied when requested with all necessary templates, measurements and shop drawings.

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1.8 Co-Ordination (Cont'd) .5 Coordinate service connections to buildings with the contractor responsible for such work.

1.9 Concealment :

- Before installation, inform the Engineer if there is a contradictory situation. Install as directed by Engineer.
- Provide two hours notice to the Engineer prior to concealment of work in order to allow review and inspection.
- All service connections, pipe couplings, bends, thrust blocks, etc. will be photographed by the Engineer as part of the project record.
- .4 Work concealed prior to inspection and photographing shall be re-exposed at the Contractor's expense.

1.10 Cutting and Remedial Work :

- Perform cutting and remedial work required to repair or replace the parts or portions of the Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- Perform remedial work by specialists familiar with the materials affected. Perform in a manner to neither damage nor endanger any portion of Work

1.11 Protection of Work in Progress :

- Adequately protect Work completed or in progress. Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Engineer, at no increase in Contract Price.
- .1 Prevent overloading of any part of the building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated without written approval of Engineer

1.12 Cleaning

Remove waste materials and debris from the site at regular intervals

1.13 Measurement
Metric Project

Unless otherwise noted, this Project has been designed and is to be constructed in the S.I. metric system of measurements.

- .2 Where specified metric elements will not be available when required, submit with Tender proposals for alternative products in accordance with the "Alternatives/Equals" clause of the Instructions to Bidders.
- .3 During construction, when specified metric elements are unattainable at the time they are required to meet the Construction Schedule, the Contractor shall notify the Engineer in writing and suggest alternative substitutions. Costs due to these substitutions shall be borne by the Contractor.

1.14 Measurement
for Payment

- .1 Upon delivery of materials to the site the Contractor may submit invoices and a progress claim for material on site.

END OF SECTION 01601

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- 1.1 Progressive Cleaning
- Maintain the Work in tidy condition, free from accumulation of waste products and debris, other than that caused by the Owner or other Contractors.
- .2 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris
- .3 Remove waste material and debris from the site at the end of each working day.
- 1.2 Final Cleaning
- . Remove waste products and debris other than that caused by the Owner, other contractors or their employees, and leave the Work clean and suitable for occupancy by Owner.
- .2 Remove surplus products, tools, construction machinery and equipment not required for the performance of the remaining work.
- . Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- 1.3 Documents
- .1 Collect reviewed submittals (Section 01301) and assemble documents executed by Subcontractors, Suppliers and manufacturers.
- . Submit material prior to final Application for Payment. For equipment put into use with Owner's permission during construction, submit within ten (10) days after start-up. For items of Work delayed materially beyond date of Substantial Performance provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period
- Provide warranties and bonds fully executed and notarized.

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| <u>1.3 Documents</u>
<u>(Cont'd)</u> | <p>.4 Submit a final statement of accounting giving total adjusted Contract Sum, previous payments and monies remaining due.</p> <p>.5 Engineer will issue a final change order reflecting approved adjustments to Contract Sum not previously made.</p> |
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| <u>1.4 Removal of</u>
<u>Temporary Facilities</u> | <p>.1 Prior to application for Certificate of Substantial Performance, remove all temporary offices and furniture, hoardings, fencing, tree and plant protection and all other items used to aid the performance of the Work. Make good surfaces and features to original condition or better.</p> |
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| <u>1.5 Project</u>
<u>Commissioning</u> | <p>.1 Expedite and complete deficiencies and defects identified by the Engineer.</p> <p>.2 Review cash and contingency allowances in relation to contract prices, change orders, retainage, hold-backs and other contract price adjustments.</p> <p>.3 Submit required documentation such as statutory declarations, Workers' Compensation Certificates, warranties, certificates of approval or acceptance from regulating bodies.</p> <p>.4 Review inspection and testing reports to verify conformance to the intent of the documents and that changes, repairs or replacements have been completed.</p> <p>.5 When partial use of uncompleted project is required by the Owner, coordinate Owner's uses, requirements, access, with Contractor's requirements to complete the Project.</p> <p>Coordinate Owner's initiating use of system with Contractor's and Subcontractor's cleaning-up and completion activities all to suit Owner's work schedule and not disrupt Owner's productivity.</p> |
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1.6 Final
Inspection and
Declaration
Procedures

Contractor's Inspection: The Contractor and all Subcontractors shall conduct an inspection of the Work, identify deficiencies and defects; repair as required. Notify the Engineer in writing of satisfactory completion of the contractor's Inspection and that corrections have been made. Request an Inspection.

Inspection: When the items noted above are complete, request a final inspection of the Work by the Owner, Engineers, and the Contractor. If Work is deemed incomplete by the Owner and Engineer, a list of deficiencies and defects will be prepared by the Engineer. Complete the outstanding items and request a reinspection.

Certificate of Substantial Completion: When the Owner and Engineers consider deficiencies and defects have been corrected and it appears requirements of the Contract have been substantially performed, make application for certificate of Substantial Completion.

Certificate of Final Completion: When the Owner and Engineers consider final deficiencies and defects have been corrected and it appears requirements of the Contract have been totally performed, make application for certificate of Final Completion. If Work is deemed incomplete by the owner and Engineer, complete the outstanding items and request a reinspection

Final Payment: Following completion of the lien period, submit claim for final payment in accordance with the General Conditions.

1.7 Measurement for
Payment

There will be no separate measurement for payment under this section. It is incidental under this section. It is incidental to completion of the work.

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END OF SECTION 01700

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1.1 Record Documents and Samples

In addition to requirements in General Conditions, Maintain at the site for Owner one record copy of:

- .1 Contract Drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Change Orders and other modifications to the Contract.
- .5 Reviewed shop drawings, product data, and samples.
- .6 Field test records.
- .7 Inspection certificates.
- .8 Manufacturer's certificates.

Store Record Documents and Samples in Field Office apart from documents used for construction. Provide files, racks, and secure storage.

Label and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

- .4 Maintain Record Documents in a clean, dry and legible condition. Do not use Record Documents for construction purposes.
- .5 Keep Record Documents and samples available for inspection by Consultant.

1.2 Recording Actual Site Conditions

- .1 Record information on a set of blue line opaque drawings, and in a copy of the Specification, provided by Owner.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal work until required information is recorded.

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1.2 Recording
Actual Site
Conditions
(Cont'd)

Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:

- .1 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
- .2 Field changes of dimension and detail.
- .3 Changes made by change orders.
- .4 Details not on original Contract Drawings
- .5 References to related shop drawings and modifications.

- .5 Specifications: legibly mark each item to record actual construction, including:

- .1 Manufacturer, trade name, and catalog number of each project actually installed, particularly optional items and substitute items.
- .2 Changes made by Addenda and change orders.

- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.3 Warranties and
Bonds

- . Separate each warranty or bond with index tab sheets keyed to the List of Contents listing.
- . List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal
- . Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- . Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- . Verify that documents are in proper form, contain full information, and are notarized.

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1.2 Warranties and Bonds .6 Co-execute submittals when required.

(Cont'd)

Retain warranties and bonds until time specified for submittal.

1.4 Measurement for Payment :

There will be no separate measurement for payment under this section. It is incidental to completion of the Work.

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This section to cover operations of sit preparation

1.1 PROTECTION

Prevent damage to existing survey monuments, and utility lines encountered. Make good any damage at no expense to the Owner.

1.2 MEASUREMENT FOR PAYMENT

Site preparation and clearing of snow, if required, will be incidental to the contract.

PART 2 - PRODUCTS

.2 Not applicable to work of this Section.

PART 3 - EXECUTION

3.1 SNOW AND MISCELLANEOUS CLEARING

.1 Prior to construction, clear area of snow and miscellaneous surface debris.

3.2 REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL

. Remove unsuitable materials off site to an area designated by the Engineer.

END OF SECTION 021

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PART 1 - GENERAL

1.1 DEFINITIONS

Excavation classes

.1 Rock excavation: excavation of material from solid masses of igneous, sedimentary or metamorphic rock which, prior to its removal, was integral with its parent mass, and boulders or rock fragments having individual volume in excess of 1 m³.

.2 Common excavation: Dispose on site:

Excavation of all materials of whatever nature but excluding ice and snow, which are not included under the definitions of solid rock, including dense tills, hardpan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment and are considered suitable for re-use in the roadway embankment shall be placed as directed by the Engineer.

.3 Common excavation: Unsuitable material:

Excavation of all materials of whatever nature but excluding ice and snow, which are not included under the definitions of solid rock, including dense tills, hardpan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment and are not considered suitable for re-use in the roadway embankment shall be disposed off site at a location selected by the Engineer. For the purposes of estimating haul distance, the disposal location shall be considered at the Municipal solid waste facility.

1.2 PROTECTION

Drainage The Contractor shall dewater and de-ice all portions of the work before construction and properly and efficiently drained during the construction and until completion. He shall be held responsible for all damage which may be caused as the result of surface water along any part of the work or adjacent properties due to his operation. All costs associated with providing positive

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1.2 PROTECTION .1 (Cont'd)

(Cont'd)

drainage for the work as required, shall be incidental to the work.

.2 Protect all monuments, legal pins, bench Marks, stakes and lines located onsite.

.3 Existing Surface Features:

.1 Protect existing buildings, fencing, Service poles, wires and paving located within Right-of-way or adjoining properties from Damage while work is in progress and repair Damage resulting from work.

.2 Maintain and protect from damage, Electric, telephone and other utilities Encountered.

.3 Obtain direction of Owner of utility and Engineer before moving or otherwise disturbing Utility.

.4 Repair or replace items damaged during the Work to Engineer's approval at no extra cost To Owner.

1.3 MEASUREMENT AND .1 Common excavation:
PAYMENT

.1 To be measured in cubic metres by truck Box measurement method. (If disputed the CG&T Surveyor will determine the final quantities)

.2 The quantity of common excavation shall Be the volume determined by truck box Measurement taken after excavation. Excavation Of surface ice and snow if required will not Be measured for payment.

.3 The quoted Unit Price for disposal of Unsuitables at the solid waste site or other Designated area shall be compensation in full For all works related to the loading of Material at the site of excavation, hauling, Disposal and leveling or stockpiling at the Solid waste site, or other area designated by The Engineer.

.2 Rock excavations:

.1 To be measured in cubic metres.

.2 The quantity of rock excavated shall be the volume determined by cross-sections taken before and after rock excavation, and computed by the Average End Area Method. "Before"

1.3 MEASUREMENT AND ..
PAYMENT
(Cont'd)

Rock excavation: (Cont'd)

.2 (Cont'd)

cross-sections shall be taken after the removal of surface ice, snow and materials classified as "common excavation" materials. "After" cross-sections shall be taken after the excavation of rock to the Design Rock Cut Elevation indicated on the drawings, or to elevations indicated by the Engineer.

.3 Volume of excavated boulders and rock fragments to be determined by measuring three maximum mutually perpendicular dimensions.

.4 The quoted Unit Price for excavation and disposal within the site shall be compensation in full for all drilling, photographing existing conditions before blasting, use of explosives, blast cover, additional cost of handling blasted material including hauling, disposal, levelling and compaction within the site, and all related work even though not specified in minute detail.

.5 The quoted Unit price for excavation and disposal offsite shall be compensation in full for all drilling, photographing existing conditions before blasting, use of explosives, blast cover, additional cost of handling blasted material including hauling, disposal and levelling at a location defined by the Engineer.

Embankment:

.1 Embankment construction shall be measured compacted in place.

.2 To be measured in cubic metres by truck box measurement.

.3 The quantity of embankment shall be the volume of material imported to the project as calculated by measurement of the volume of any truck sued for hauling the granular materials and a count of the number of truck utilized for the importing exercise. The Engineer will assign a credible agent to measure the volume of the truck boxes proposed for use by the contractor and will assign a person to the project to monitor construction and count the loads imported to the project. Embankment construction beyond the limits requested by the Engineer or indicated on the Drawings will not be paid for. Rock excavation as embankment